

## ABSTRACT

A surface sensing device includes an articulating head adapted for attachment to the spindle of a measuring machine and having two relatively rotatable parts capable of rotation about two mutually perpendicular axes. The device additionally includes a stylus assembly having a relatively stiff hollow stylus carrier, and a relatively flexible hollow stylus. An optical transducer system is provided within the stylus assembly and comprises a fixed light source which directs a beam of light towards a stylus tip, and a retro-reflective component at the tip which reflects the beam back to a fixed detector. The arrangement is such that lateral displacement of the stylus tip when the tip is in contact with a surface can be measured directly.



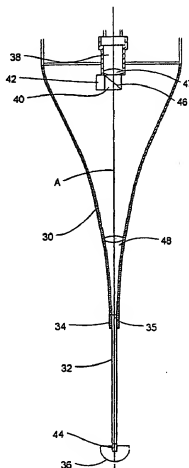
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(54) Title: SURFACE SENSING DEVICE WITH OPTICAL SENSOR

## (57) Abstract

A surface sensing device includes an articulating head adapted for attachment to the spindle of a measuring machine and having two relatively rotatable parts capable of rotation about two mutually perpendicular axes. The device additionally includes a stylus assembly having a relatively stiff hollow stylus carrier (30), and a relatively flexible hollow stylus (32). An optical transducer system is provided within the stylus assembly and comprises a fixed light source (38) which directs a beam of light towards the stylus tip (36), and a retro-reflective component (44) at the tip which reflects the beam back to a fixed detector (42). The arrangement is such that lateral displacement of the stylus tip when the tip is in contact with a surface can be measured directly.



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